REMARKS

Claims 2-10, 12-31, and 34-44 are pending. Claims 2-10, 12-20, 22, 23, 25,-31, and 34-44 have been amended. No new matter has been added. Reconsideration and reexamination of the present application are respectfully requested.

Claim Rejections under 35 USC § 112, second paragraph

The Examiner rejected claims 7, 8, 10-31, and 34-44 under 35 USC 112, second paragraph as being indefinite. Applicants have amended claims 7, 8, 10-31, and 34-44 in view of the Examiner's remarks. Applicants believe that claims 7, 8, 10-31, and 34-44, as amended are definite and respectfully request that the Examiner withdraw the rejection.

Claim Rejections under 35 USC § 102

The Examiner rejected claims 10-31 under 35 U.S.C. 102(b) as being anticipated by Ptasinski. Applicants respectfully traverse the rejections in view of the claims, as amended.

Independent claim 10, as amended recites:

10.   A method of determining the location of a receiver in receipt of at least three positioning signals, comprising:
identifying a reference location with the at least three positioning signals;
retrieving an initial height of the receiver based on the identified reference location;
identifying a plurality of grid points located a predetermined distance from the reference location;
determining an average height of the receiver based on elevation information associated with the plurality of grid points;
determining an average height error value based on the elevation information associated with the plurality of grid points and the average height of the receiver;
deriving at least three simultaneous equations associated with the at least three positioning signals;
solving the at least three simultaneous equations with the average height of the receiver and the average height error value that results in a position and a corresponding horizontal error ellipse;
fitting a two-dimensional polynomial to the corresponding horizontal error ellipse; and
solving the at least three simultaneous equations and the two-dimensional polynomial that results in an altitude of the satellite positioning receiver.

The Ptasinski reference does not disclose teach or suggest the method recited in independent claim 10, as amended. In particular, Ptasinski does not disclose a method including "retrieving an initial height of the receiver based on the identified reference location," "identifying a plurality of grid points located a predetermined distance from the reference location," "determining an average height of the receiver based on elevation information associated with the plurality of grid points" or "determining an average height error value based on the elevation information associated with the plurality of grid points and the average height of the receiver."

Ptasinski discloses a 2-D positioning algorithm using a digital height dataset for altitude augmentation. However, Ptasinski requires an initial horizontal position in to determine the location of the receiver. (Ptasinski, p. 455) Thus, Ptasinski does not disclose at least the limitations identified above. Accordingly, Applicants respectfully submit that independent claim 10 distinguishes over the Ptasinski reference.

Independent claims 18 and 25 recite limitations similar to those in independent claim 10, as amended. Accordingly, Applicants respectfully submit that independent claims 18 and 25 distinguish over Ptasinski for reasons similar to those set forth above with respect to independent claim 10, as amended.

Claims 12-17 and 37-38 depend from independent claim 10, as amended. Claims 19-24, 39 and 40 depend from independent claim 18, as amended. Claims 26-31, 41 and 42 depend from independent claim 25, as amended. Accordingly, Applicants respectfully submit that claims 12-17, 19-24, 26-31, and 37-42 distinguish over Ptasinski for the same reasons set forth above with respect to independent claims 10, 18 and 25, as amended, respectively.

Claim Rejections under 35 USC § 103

The Examiner rejected claims 2-9, and 34-44 under 35 U.S.C. 103(a) as being unpatentable over Ptasinski et al., Journal of Navigation, 2002, chapter 55, pp. 451-462 ("Ptasinski") in view of U.S. Patent No. 6,202,023 to Hancock ("Hancock"). Applicants respectfully traverse the rejections in view of the claims, as amended.

Independent claim 2, as amended recites:

2.   A satellite positioning receiver capable of receiving at least three positioning signals, comprising:

a navigation processor that processes the at least three positioning signals and determines at least three code phases, and *determines a location of the satellite positioning receiver based on initial digital terrain elevation data used to calculate a solution with the at least three code phases and an altitude equation derived from the initial digital terrain elevation data*, wherein the solution further includes:

a horizontal error ellipse parameter in the altitude equation that forms an error ellipse having a major axis and a minor axis that corresponds to the altitude error,

a plurality of points along the major axis and the minor axis that form a grid of grid points, and

a two-dimensional polynomial surface fit over the grid points; and

a memory that stores digital terrain elevation data at the grid points.

The cited references do not disclose, teach, or suggest the method recited in independent claim 2, as amended. In particular, Ptasinski and Hancock, either alone or in combination, fail to disclose "a navigation processor that processes the at least three positioning signals and determines at least three code phases, and *determines a location of the satellite positioning receiver based on initial digital terrain elevation data used to calculate a solution with the at least three code phases and an altitude equation derived from the initial digital terrain elevation data*."

Ptasinski discloses a 2-D positioning algorithm using a digital height dataset for altitude augmentation. However, Ptasinski requires an initial horizontal position in to determine the location of the receiver. (Ptasinski, p. 455) This is not the same as determining "*determines a location of the satellite positioning receiver based on initial digital terrain elevation data used to calculate a solution with the at least three code phases and an altitude equation derived from the initial digital terrain elevation data.*" Accordingly, Applicants respectfully submit that independent claim 2, as amended distinguishes over Ptasinski.

The Hancock reference does not make up for the deficiencies of the Ptasinski. Hancock discloses a grid of grid points. (Hancock, 6:45-54). However, the combination of Ptasinski and Hancock fails to disclose, teach or suggest "a navigation processor that processes the at least three positioning signals and determines at least three code phases, and *determines a location of the satellite positioning receiver based on initial digital terrain elevation data used to calculate*

a solution with the at least three code phases and an altitude equation derived from the initial digital terrain elevation data."

Therefore, Applicants respectfully submit that independent claim 2, as amended distinguishes over Ptasinski in combination with Hancock.

Independent claim 34, as amended recites limitations similar to those in independent claim 2, as amended. Accordingly, Applicants respectfully submit that independent claim 34 distinguishes over Ptasinski in combination with Hancock for reasons similar to those set forth above with respect to independent claim 2, as amended.

Claims 3-9, 35, and 36 depend from independent claim 2, as amended. Claim 43 and 44 depend from independent claim 34, as amended. Accordingly, Applicants respectfully submit that claims 3-9, 35, 36, 43 and 44 distinguish over Ptasinski in combination with Hancock for the same reasons set forth above with respect to independent claims 2 and 34, as amended.

With respect to claims 37-42, which respectively depend from independent claims 10, 18, and 25, the Hancock reference does not make up for the deficiencies of Ptasinski. Hancock discloses a grid of grid points. (Hancock, 6:45-54). However, the combination of Ptasinski and Hancock fails to disclose teach or suggest "retrieving an initial height of the receiver based on the identified reference location," "identifying a plurality of grid points located a predetermined distance from the reference location," "determining an average height of the receiver based on elevation information associated with the plurality of grid points" or "determining an average height error value based on the elevation information associated with the plurality of grid points and the average height of the receiver." Accordingly, Applicants respectfully submit that claims 37-42 distinguish over Ptasinski in combination with Hancock.

Conclusion

All objections and rejections having been addressed, it is believed that the claims are in condition for allowance, and Notice to that effect is earnestly solicited. If any issues remain which the Examiner feels may be resolved through a telephone interview, s/he is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,
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